Math 212
Requiz 11A

F 21 Oct 2016 / N 23 Oct 2016

Your name: _____

Exercise

(5 pt) This exercise investigates limits of functions $f : D \subseteq \mathbf{R}^2 \to \mathbf{R}$. For each function f appearing in the following limits, let D be its maximum domain of definition.

(a) (2.5 pt) Prove that the following limit exists, and find it.

$$\lim_{(x,y)\to(0,0)} \frac{y^4 - x^4}{x^2 + y^2}$$

(b) (2.5 pt) Prove that the following limit does not exist.

$$\lim_{(x,y)\to(0,0)} \frac{xy^3}{x^2 + y^6}$$